

NON-PUBLIC?: N
ACCESSION #: 8810050075
LICENSEE EVENT REPORT (LER)

FACILITY NAME: South Texas, Unit 1 PAGE: 1 of 3

DOCKET NUMBER: 05000498

TITLE: Reactor Trip Due to Turbine Trip on August 26, 1988
EVENT DATE: 08/26/88 LER #: 88-049-00 REPORT DATE: 09/26/88

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Charles A. Ayala Supervising Licensing TELEPHONE: 512-972-8628
Engineer
COMPONENT FAILURE DESCRIPTION:
CAUSE: B SYSTEM: TJ COMPONENT: FUB MANUFACTURER: G182
REPORTABLE TO NPRDS: NO

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On August 26, 1988 with Unit 1 in Mode 1 at 100 percent power, a reactor trip occurred due to a turbine trip at 1724 hours. A Safety Injection Actuation subsequently occurred on low steam pressure at 1728 hours due to misoperation of the Main Steam Isolation controls by a control room operator. The cause of the turbine trip was determined to be a defective fuse block in the Stator Cooling Water trip circuit which caused intermittent de-energization of the Stator Cooling Water Low Low Differential Pressure time delay relay. Corrective actions include replacement of the fuse block, evaluation of the Stator Cooling Water trip circuitry and operator training.

END OF ABSTRACT

TEXT PAGE 2 OF 3

DESCRIPTION OF OCCURRENCE:

On August 26, 1988, with Unit 1 in Mode 1 at 100 percent power, a reactor trip occurred due to a turbine trip at 1724 hours. At 1726 hours the HL&P licensed

control room operators reduced steam loads to slow the Reactor Coolant System (RCS) cooldown rate. At 1728 hours, in order to terminate the cooldown, the Main Steam Isolation (MSI) switches were placed in the "CLOSE" position to close the Main Steam Isolation Valves (MSIV's), the Main Steam Isolation Bypass Valves (MSIB's) and the Main Steam Above-Seat Drain Valves (MSDV's). The lowest RCS temperature reached was 549 degrees F. The decision was then made to open the MSIB's to

warm up the steam header and maintain sealing steam to the turbine. To accomplish this, the licensed control room operator placed the MSI switches in their "OPEN" position, however, the MSIV control switches were not placed in their "CLOSE" position first as required by procedure. This resulted in the unexpected opening of the MSIV's and subsequent Safety Injection Actuation on low steam pressure. The operators terminated the event per procedure. No safety injection occurred into the RCS because the primary system pressure exceeded the shutoff head of the Safety Injection Pumps. No cause for the turbine trip could be determined immediately. The NRC was notified of this event at 1850 hours on August 26, 1988.

Monitoring equipment was installed in an effort to locate the cause of the spurious turbine trips. Another turbine trip occurred on August 28, 1988 from 23 percent power. No reactor trip occurred at that time because reactor power was less than 50 percent. Again, no cause for the turbine trip could be determined.

Additional monitoring equipment was subsequently installed in an effort to locate the cause of the trips. On September 2, 1988 the turbine tripped again from 46 percent power. Subsequent troubleshooting identified the cause to be a defective fuse block in the Main Generator Stator Cooling Water trip circuit. The fuse holder was making intermittent contact with the fuse. This resulted in de-energization of the Stator Cooling Water Low Differential Pressure time delay relay and initiation of the turbine trip.

CAUSE OF OCCURRENCE:

The cause of the turbine trips was a defective fuse block in the Stator Cooling Water trip circuit.

The cause of the reactor trip on August 26, 1988 was a Reactor Trip System actuation on two out of three Lo-Lo Electro Hydraulic Controller pressure coincident with P-9 (reactor power greater than 50%).

TEXT PAGE 3 OF 3

CAUSE OF OCCURRENCE (Cont.d)

The cause of the Safety Injection Actuation was operator error in not following

the applicable plant procedure. The procedure required the operator to place the MSIV control switch in "CLOSE" prior to placing the MSI control switch in "OPEN". Failure to perform these steps resulted in opening of the MSIV's, rapid decrease in main steam pressure and subsequent Safety Injection Actuation.

ANALYSIS OF EVENT:

This event is reportable pursuant to 10CFR50.73(a)(2)(iv) as an unanticipated actuation of the reactor trip system. There were no adverse safety or radiological consequences as a result of this event. All safety systems responded as designed. No safety injection occurred to the RCS.

CORRECTIVE ACTION:

The following corrective actions have been or will be taken to prevent recurrence of this event:

1. The defective fuse block was replaced. The fuse block for the redundant Stator Cooling Water Low Differential Pressure trip circuit was also replaced as a precautionary measure.
2. The setting of the Stator Cooling Water Turbine Trip time delay has been changed to 40 seconds to allow the operator additional time for corrective actions in the event of low stator cooling water flow.
3. The design of the Stator Cooling Water Trip scheme is being evaluated to determine if the reliability of the trip circuitry, including the fuse blocks, can be improved. This evaluation will be completed by November 4, 1988.
4. Operations has conducted training during daily shift briefings on the proper sequence of operation of MSI and MSIV control switches.

ADDITIONAL INFORMATION:

The defective fuse block was a Buchanan Model Buch 358 SP.

There have been no previous similar events reported to the NRC.

ATTACHMENT 1 TO 8810050075 PAGE 1 OF 2

PO. Box 1700 Houston, Texas 77001 (713) 228-9211
The Light Company
Houston Lighting & Power

September 26, 1988

ST-HL-AE-2794.
File No.: G26
10CFR50.73

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

South Texas Project Electric Generating Station
Unit 1.
Docket No. STN 50-498.
Licensee Event Report LER 88-049 Regarding
Reactor Trip Due to Turbine Trip on August 26, 1988

Pursuant to 10CFR50.73, Houston Lighting & Power submits the attached Licensee Event Report (LER 88-049) regarding reactor trip due to turbine trip on August 26, 1988. This event did not have any adverse impact on the health and safety of the public.

If you should have any questions on this matter, please contact Mr. C.A. Ayala at (512) 972-8628.

G. E. Vaughn
Vice President
Nuclear Plant Operations

GEV/BEM/nl

Attachment: LER 88-049

ATTACHMENT # 1 TO ANO # 8810050075 PAGE 2 OF 2

Houston Lighting & Power Company

ST-HL-AE-2794
File No.: G26
Page 2

cc:

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ACCESSION #: 8810050112
